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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/509,649	03/30/2000	ROBERT ARTHUR LEE	CU-2137TFP	7785

7590 12/24/2003

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EXAMINER

CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/509,649

Applicant(s)

LEE ET AL.

Examiner

Audrey Y. Chang

Art Unit

2872

AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-26, 28 and 30-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-26, 28 and 30-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 26, 2003 has been entered.

This Office Action is also in response to applicant's amendment filed on July 30, 2003, which has been entered as paper number 21.

2. By this amendment, the applicant has amended claims 19, 21, 24, 33 and 34 and has cancel claims 27, and 29.

3. Claims 19-26, 28 and 30-36 remain pending in this application.

4. The rejections to claims under 35 USC 112, first paragraph, for new matters added to amended claims 33 and 34 as set forth in the previous Office Action are withdrawn in response to applicant's amendment.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. **Claims 19-23, 26, 28, 30-32 and 35-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

Art Unit: 2872

The reasons for rejections have been set forth in the previous Office Action.

Claim 19 includes the feature of “having a structure selected from predefined group of different non-diffracting gray scale region structure types, each structure type having physical characteristics which provide a particular level of diffuse scattering of incident light”. The **specification fails** to give **explicit** teachings about (1) **what** are these “non-diffracting gray scale region **structure types**”, (2) **what** specific **structures** are included in the “predefined group”, and (3) **what** are the “**physical characteristics**” that is capable of providing “a particular level of diffuse scattering of incident light”. The **specification fails** to teach specific *working examples* or *operable examples* of such claimed functions which therefore **fails** to enable one skilled in the art to make and/or use the invention. The applicant is respectfully reminded that the specification needs to give explicit teachings as what are considered to be the “predetermined group of different non-diffraction gray scale region structure types”. By saying this verse does not really give any actual teachings about the structures. If the structures are concerning to physical *grooves*, then such should be explicitly taught. The spacing, the size or any other features that give the “different non-diffraction gray scale region structures must be explicitly taught”. At this juncture, the specification **fails** to enable one skilled in the art to make and/or use the subject matters stated here. No physical substantial knowledge concerning the “group of structures” is given in the specification. Claim 26 also include the similar phrase “different non-diffracting gray scale region structure types” that is rejected for the same reasons stated above. *Claims 20-23, 28, 30-32, and 34-36 inherit the rejection from their respective base claims. Clarifications are required.*

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2872

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 19-26, 28, and 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Lee (PN. 5,825,547) in view of the patent issued to Solmsdorf (PN. 5,808,758).**

Lee teaches a *diffractive device*, having *surface relief structure*, that serves as the *device having surface relief structure*, wherein the diffractive device comprises a plurality of *tracks* that each of the tracks comprises diffraction grating grooves such that the diffraction gratings generates optically variable images when illuminated. Lee teaches that the diffracting tracks further comprise *diffusely reflecting regions* and *specularly reflecting regions within* the diffracting regions or tracks wherein the diffusely reflecting regions are used to *encode auxiliary information*, (please see column 7, lines 39-45). These diffusely reflecting regions are formed by having *randomly spaces grooves*, which serve as the *gray scale regions* and will implicitly give certain level of diffuse scattering of the light depending on the arrangement of the grooves. Lee teaches that the diffracting tracks have a width less than 0.25 mm, which therefore suggests that the diffusely reflecting regions also have a width, less than 0.25 mm since these diffusely reflecting regions are **within** the diffraction region of the track. It is implicitly true that the diffusely reflecting regions are *non-diffraction regions* since diffusion phenomenon is different from diffraction phenomenon. Lee teaches *specifically* that these diffusely reflecting regions are used to encode auxiliary information that are not found in the diffraction image, (please see column 7, lines 43-44). It is implicitly true that these auxiliary information may include graphical text and/or image. Lee further teaches, in a different embodiment, that graphical micro-writing (13, Figure 9, column 8, lines 15-34) may be embossed and formed in between the diffraction regions of the diffraction tracks, which correspond to another form of non-diffraction regions.

This reference has met all the limitations of the claims. This reference however does not teach *explicitly* that the diffusely reflecting regions provide *different* levels of diffusing characteristic or gray

Art Unit: 2872

scale to the incident light. However such feature is either inherently met by the disclosure, since the level of diffusing characteristics depends on the arrangements of the grooves and physical sizes of the grooves, or it would have been obvious to one skilled in the art to for the benefit of allowing the auxiliary information encoded within is viewed with different gray scale to add extra level of security to the device. This reference also does not teach explicitly that the encoded auxiliary information in the diffusely reflection regions are together to generate a macroscopic graphical, line art or image. However such feature is considered to be obvious matter of design choice to one skilled in art for the benefit of designing the encoded information as desired. **Solmsdorf** in the same field of endeavor also teaches to design the diffusely scattering regions on a data carrier to be arranged to give a macroscopic graphic design, (please see Figure 1). It would therefore have been obvious to one skilled in the art to modify the device of Lee accordingly for the benefit of providing a macroscopically recognizable graphical design to the diffractive device.

With regard to claim 21, Lee teaches that the surface pattern of the diffractive device may have a surface area dimension of 30 micron by 30 micron, it is implicitly true that the area dimension for the diffusely reflecting regions is less than such, (please see column 6, lines 63-65).

With regard to claims 22-23, and 25, Lee does not teach explicitly that the individual diffusely reflecting non-diffraction region comprises an identical or a different image. However such modification is considered to be an obvious matter of *design choice* to one skilled in the art for the benefit of having the degrees of freedom to print different types of graphical information for enhancing the ability of anti-forgery and the applications of the document.

With regard to claim 28, Lee teaches that the diffraction tracks having diffraction grating regions with relief grooves structure that each of the diffraction gratings generates an optical variable image upon illumination of light. Optical variable image means the image varied in response to the viewing direction and position of the observer.

Art Unit: 2872

With regard to claim 30, Lee teaches to include the above- mentioned diffusely reflecting regions and specularly reflecting regions, which have the ability of enhancing the contrast of the diffracted images stored in the diffraction tracks. It is known in the art that the non-diffraction regions interposed between the diffraction regions have the ability of enhancing the diffracted images of the diffraction regions.

With regard to claims 34-36, Lee teaches that the diffractive device may be adapted for application as security devices for currency notes or credit card. The idea of matching the image presented by the diffractive device and the currency note or credit card is *an obvious matter of design choice* to one skilled in the art since it involves only routine skill in the art and it has the advantages of serving the purpose of anti-forgery. The manners with respect to the actual inspection of the authentication of the security device having the diffraction gratings, recited in claims 35 and 36, do not differentiate the claimed device from prior art device satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ 2d 1647 (1987).

Response to Arguments

8. Applicant's arguments with respect to claims 19-26, 38 and 30-36 have been considered but are moot in view of the new ground(s) of rejection.

9. In response to applicant's arguments concerning the cited Lee reference teaches a device for presenting optical *variable* images that is different from the instant application concerning the device for generating optical *invariable* image, the examiner respectfully disagrees for the following reasons. Firstly, the features concerning either "optical variable image" or "optical invariable image" are **not** specifically stated in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Secondly, the optical variable image is provided by the *diffraction regions*, not the non-diffraction, diffusely reflection regions, of Lee reference, which is an *implicitly*

Art Unit: 2872

property of the diffraction grating. The diffractive regions of the instant application will also provide the similar optical variable image. The Lee reference therefore reads on the instant application.

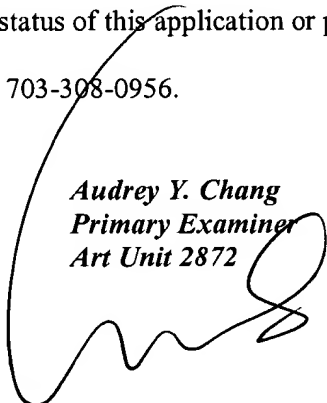
10. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., holographic copy technique) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant is also respectfully reminded here that the holographic technique is not disclosed in the specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.